30V- 2A Power Supply
ST4073

Operating Manual

Ver.1.1

An ISO 9001 : 2000 company

scienTECH Technologies Pvt. Ltd.

94-101, Electronic Complex Pardesipura,
Indore- 452010, India
Tel : 91-731- 2570301/02, 4211100
Fax: 91- 731- 2555643
e mail : info@scientech.bz
Website : www.scientech.bz
Toll free : 1800-103-5050

TÜV TÜV Rheinland Group

CERTIFICATE

The Certification Body for
Quality Management Systems
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certifies in accordance with
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Scientech Technologies Pvt. Ltd.

Unit-1: 94-101, Electronics Complex, Pardeshi Pura,
Indore – 452 010, Madhya Pradesh, India
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Indore – 452 010, Madhya Pradesh, India

has established and applies a quality management system for

Design, Manufacture of Electronic Test & Measuring Instruments, Training Products for Electrical & Electronics Education and Providing Technology Training

An audit was performed, Report No. 07930
Proof has been furnished that the requirements according to

DIN EN ISO 9001: 2000

are fulfilled.
The certificate is valid until 2010-11-20
Certificate Registration No. **85 100 001 07930**

TÜV NABCB QMS 010

Bangalore, 2007-11-21

The validity of this certificate is subject to timely completion of Surveillance audits as agreed in the Contract. The Validity of the Certificate can be verified under WWW.tuv.com with the Identification No. 9105027653

The certification Body of
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04/11/NABCB/00

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Table of Contents

1.	Introduction	5
2.	Technical Specifications	6
3.	Front Panel Controls	7
4.	Operating Instructions	8
	• General Information	
	• Safety	
	• Operating Conditions	
	• Operation	
5.	Functional Checks	10
6.	Warranty	11
7.	List of Accessories	11

RoHS Compliance

Scientech Products are RoHS Complied.

RoHS Directive concerns with the restrictive use of Hazardous substances (Pb, Cd, Cr, Hg, Br compounds) in electric and electronic equipments.

Scientech products are “Lead Free” and “Environment Friendly”.

It is mandatory that service engineers use lead free solder wire and use the soldering irons upto (25 W) that reach a temperature of 450°C at the tip as the melting temperature of the unleaded solder is higher than the leaded solder.

Safety Instructions

Read the following safety instructions carefully before operating the instrument. To avoid any personal injury or damage to the instrument or any product connected to it.

Do not operate the instrument if suspect any damage within.

The instrument should be serviced by qualified personnel only.

For your safety :

Use proper Mains cord **:** Use only the mains cord designed for this instrument. Ensure that the mains cord is suitable for your country.

Ground the Instrument **:** This instrument is grounded through the protective earth conductor of the mains cord. To avoid electric shock the grounding conductor must be connected to the earth ground. Before making connections to the input terminals, ensure that the instrument is properly grounded.

Observe Terminal Ratings **:** To avoid fire or shock hazards, observe all ratings and marks on the instrument.

Use only the proper Fuse **:** Use the fuse type and rating specified for this instrument.

Use in proper Atmosphere **:** Please refer to operating conditions given in the manual.

1. **Do not operate in wet / damp conditions.**
2. **Do not operate in an explosive atmosphere.**
3. **Keep the product dust free, clean and dry.**

Introduction

- **Floating DC supply voltages**
- **DC : 0 - 30V; 0-2 Amp**
- **Constant voltage & constant current operation**
- **Digital display for voltage and current**
- **Adjustable current limiter**

The **ST4073 30V, 2A Power Supply** has been designed as a *constant current (CC)* and *constant voltage (CV)* source for laboratories, industries and field testing applications, featuring low power loss, compact and light weight. It provides floating, DC output voltages and is ideally suitable for complex analog and digital applications.

The DC output can be continuously adjusted from 0 -30V with coarse and fine controls. Current limit is also adjustable from 0-2A. Any over loading for adjusted current limit, is indicated by flashing "CC" LED. When the maximum setting is crossed or the overheating has occurred, the LED will lit up.

A 3-digit display for voltage and current is used to read the instantaneous values. These two parameters are switchable for indicating either voltage or current. In addition to low residual ripple and noise, it has excellent line and load regulation. The 30V- 2A Power Supply is also provided with all protective circuits to ensure trouble free operation.

Technical Specifications

DC Output	**:**	0-30V, continuously variable by means of coarse and fine controls
Output Current	**:**	2A (Maximum)
Setting Resolution	**:**	Voltage **:** 10mV Current **:** 5mA
Internal Resistance	**:**	≤ 10 mΩ
Stability	**:**	≤ 2.5 mV at 30V/2A
Recovery Time	**:**	≤ 50 μs
Load Regulation	**:**	≤ (0.05% + 10 mV)
Line Regulation	**:**	≤ (0.05% +10 mV)
Temperature Coefficient	**:**	≤ (0.05% + 5 mV/°C)
Ripple & Noise	**:**	≤ 1mVrms
Current Limit	**:**	Adjustable between 100mA to 2A
Display	**:**	3 digits for voltage and current
Accuracy	**:**	± (1 % of reading + 1 digit)
Over Range Indication	**:**	By flashing 'CC' LED

General Information

Built in over voltage, overload, overheat & short circuit protection. All outputs are floating.

Insulation

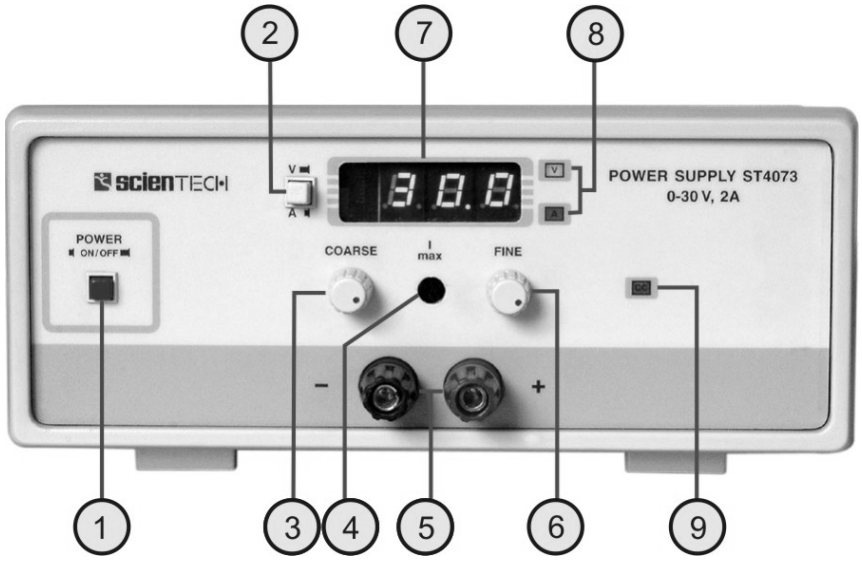
Between chassis and output terminal > 10 MΩ at 100VDC.

Between chassis and AC plug > 50 MΩ at 500V DC

Power Supply	**:**	230 V AC ± 10% 50Hz
Operating Conditions	**:**	0-40°C; 90 % RH
Dimension (mm)	**:**	W 196 x H 80 x D 262
Weight	**:**	4 Kgs approximately

(Subject to Change)

Front Panel Control



1 **Power :** Push switch for supplying power to instrument.

2 **V/A (Push button) :** For switching the display from voltage to current reading or vice versa. When the pushbutton is pressed, the current supplied from the terminals **(5)** is displayed with a resolution of 10mA. In released position the voltage across the terminals **(5)** is displayed with a resolution of 0.1 V.

3 **Coarse :** (adjusting knob): For the coarse setting of the output voltages.

4 **I Max. (adjusting knob) :** For current limit setting, adjustment range 2mA - 2A.

5 **Output 0 - 30 V :** Output terminals for 4mm banana plugs or cable connection. The output voltages are short circuit protected.

6 **Fine (adjusting knob) :** For the fine settings of the output voltage, adjustment range approximately 2.1 V.

7 **Digital Display (7-segment LED) :** 3-digit readout for output voltage and current for terminals **(5)** is indicated.

8 **V & A Indicators :** Two LEDs indicate the unit of the display.

9 **CC (constant current/over range indicator) :** LED lights up when the output current in excess of the set value.

Operating Instructions

General Information :

The logical front panel layout of **30V- 2A Power Supply** makes it easy to become familiar with the operation of the instruments. However, even experienced users should read the following instructions thoroughly before using the instrument.

After unpacking the instrument, check for any mechanical damage or loose parts inside. Should there be any transportation damage, inform the supplier immediately and do not put the instrument into operation.

Safety :

The case chassis and all measuring parts are connected to the protective earth contact of the inlet. The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. The protective action must not be negated by the use of an extension cord without a protective Conductor.

Warning !

Any interruption of the protective conductor inside or outside the instrument or disconnection of the protective earth terminal is likely to make the instrument dangerous. Intentional interruption is prohibited. The mains/line plug should be inserted before connections are made to measuring circuits.

When removing the metal case or replacing, the instrument must be completely disconnected from the mains supply. If any measurement or calibration procedures are unavoidable on the opened-up instrument, these must only be carried out by qualified personnel acquainted with the danger involved.

Operating Conditions :

The ambient temperature range during operation should be between 0°-40°C and should not exceed - 20°C or + 70°C during transportation or storage. The operational position should be normal however; the ventilation holes on the **30V, 2A Power Supply** must not be obstructed. Prior to calibration a preheat run of approximately 30 minutes is required.

First Time Operation :

After unpacking the instrument check for any mechanical damages. The instrument should be plugged in mains-plug of proper mains supply 230V ± 10%. Switch 'On' the instrument, the power 'On' is indicated by lighting of displays.

Operation :

The Power Supply has an electrically floating output. This permits easy series connection with other Power Supply units, to increase supply voltage or current respectively.

The output power of the **30V- 2A Power Supply** is not activated by switching on the instrument. This is for protection of the load, connected to the output. Push button **(2)** should be not activated until all settings are made. This push button is also useful for disconnecting the source from the load for any reason. The digital display always shows the actual values of voltage and current. The voltage display is active also when the outputs are disabled, thus permits voltage adjustment prior to connecting any load.

Functional Checks

The **30V- 2A Power Supply** should regularly be tested to assure proper functioning. The following test checks out the power supplies performance and suggestions for adjusting specific values. The adjustment will only be meaningful if the below indicated or equivalent instruments are used. Prior to the functional test or adjustment, the instrument should be on for at least 30 minutes.

Measuring Instruments required :

1. 4 ½ Digit DMM; 4011 Handheld or equivalent
2. 20 MHz Oscilloscope; Caddo 802 or equivalent
3. Rheostat: 100 Ω- 2A; 17 Ω- 5.5A

Test Procedure :

0-30V DC output

1. **Check of maximum DC output voltage :** Set the Coarse and Fine knobs to maximum, the maximum DC output reading should be between 31V and 33 V. This also can be verified on DMM.
2. **Check of minimum DC output voltage :** Set the Coarse and Fine knobs to minimum, the minimum DC output reading should be 00.0 Volts, which when measured on DMM will be approximately 25mV for load resistor of < 5KΩ.
3. **Check of minimum current limit setting :** Set DC output to 10V & short circuit the output terminals. Adjust current limit knob I max to minimum the reading on the display should be < 100mA.
4. **Check of maximum. Output current :** Set the DC output voltage to 10V. Short-circuit the output terminals. Adjust the I max current limit knob to maximum, the reading on the display, should be between 2.02A and 2.2A.
5. **Check of over load Indicators :** Set the instrument as in 3. When the output terminals are short circuited, CC LED should light up.
6. **Check of residual ripple and noise :** Connect any load on DC output and adjust the I max, to maximum (maximum to 2000mA), and check the ripple and noise on oscilloscope, the ripple and noise should not be more than 1mVrms.

Warranty

1. We guarantee the product against all manufacturing defects for 36 months from the date of sale by us or through our dealers. Consumables like dry cell etc. are not covered under warranty.

2. The guarantee will become void, if

a) The product is not operated as per the instruction given in the operating manual.

b) The agreed payment terms and other conditions of sale are not followed.

c) The customer resells the instrument to another party.

d) Any attempt is made to service and modify the instrument.

3. The non-working of the product is to be communicated to us immediately giving full details of the complaints and defects noticed specifically mentioning the type, serial number of the product and date of purchase etc.

4. The repair work will be carried out, provided the product is dispatched securely packed and insured. The transportation charges shall be borne by the customer.

For any Technical Problem Please Contact us at service@scientech.bz

List of Accessories

1. Mains Cord .....1 No

2. e-Manual .....1 No.

Updated 15-01-2009